

CLAIMS

- 1) A lighting assembly (13) for a luminescence analysis apparatus (1), in particular a fluorescence microscope, comprising a housing (17) connectable to a base structure (2) of the apparatus (1) and housing at least one light source (18); the lighting assembly being characterized by comprising at least one integrated lighting unit (15), in turn comprising a LED (18) defining said light source, and an optical collimating element (20) associated with the LED (18) to convey the light generated by the LED (18) in a substantially parallel beam of light rays.
- 2) A lighting assembly as claimed in Claim 1, characterized in that the lighting unit (15) comprises an excitation filter (30) located opposite the optical element (20), on the opposite side to the LED (18), to select a predetermined emission band of the LED (18).
- 3) A lighting assembly as claimed in Claim 2, characterized in that said excitation filter (30) is a band-pass filter.
- 4) A lighting assembly as claimed in Claim 3, characterized in that said excitation filter (30) permits the passage of light of a wavelength within a band superimposed on the emission band of the LED (18) and located about a peak of the LED emission curve.
- 5) A lighting assembly as claimed in one of Claims 2 to 4, characterized by comprising an optical unit (50)

associated with the lighting unit (15) and located downstream from the excitation filter (30) inside the housing (17); the optical unit (50) comprising a dichroic plate (38) substantially facing the optical element (20) 5 and tilted with respect to the beam from the optical element (20).

6) A lighting assembly as claimed in Claim 5, characterized in that the optical unit (50) comprises a hollow supporting body (51) having an entrance opening (52) and two opposite exit openings (53, 54); said dichroic plate (38) being housed in the supporting body (51) and interposed between the entrance opening (52) and the exit openings (53, 54).

7) A lighting assembly as claimed in Claim 6, 15 characterized in that the optical unit (50) comprises an emission filter (39) carried by said supporting body (51) and associated with a first exit opening (53).

8) A lighting assembly as claimed in one of Claims 5 to 7, characterized by comprising two or more 20 interchangeable lighting units (15) and/or two or more interchangeable optical units (50).

9) A lighting assembly as claimed in Claim 8, characterized by comprising selecting means (55) for selectively associating a lighting unit (15) with an 25 optical unit (50).

10) A lighting assembly as claimed in Claim 9, characterized in that said selecting means (55) comprise a movable first structure (61) supporting the lighting

units (15); and a movable second structure (62) supporting the optical units (50); said structures (61, 62) being movable with respect to the housing (17) to selectively position a lighting unit (15) and an optical unit (50) substantially facing each other.

11) A lighting assembly as claimed in any one of the foregoing Claims, characterized in that the optical element (20) is located in close proximity to the LED (18), and is connected integrally to the LED (18) to define a preassembled module (16).

12) A lighting assembly as claimed in any one of the foregoing Claims, characterized in that the optical element (20) is a complex-surface catadioptric collimator.

15 13) A lighting assembly as claimed in any one of the foregoing Claims, characterized by comprising releasable means (28) for attaching the housing (17) to the base structure (2).

14) A luminescence analysis apparatus (1), in particular for fluorescence microscopy, characterized by comprising a lighting assembly (13) as claimed in any one of the foregoing Claims.

15) An apparatus as claimed in the foregoing Claim, characterized by comprising a sample support (10); and optical means (35) for directing the light generated by the lighting assembly (13) onto a luminescent sample (31) on the support.